

# POSSIBLE ANAPHYLAXIS TO MOSQUITO BITE

## SEARCH AGAIN

### Q:

8/25/2014

8 month-old female had an allergic reaction to mosquito which possibly caused anaphylaxis. She had hives very quickly with reaction including local reaction. Baby missed her nap at 11 am and the reaction happened at 12 noon. Looking for information on treating these types of reactions.

### A:

Thank you for your inquiry.

Anaphylaxis to mosquito is rare, but well-recognized, and there is a fairly extensive body of literature dealing with this issue. The articles abstracted below will be of help to you. As you can see from the titles, immunotherapy with mosquito extract has in the past been employed.

Thank you again for your inquiry and we hope this response is helpful to you.

### **Take a Bite Out of Mosquito Stings**

*Allerg Immunol* (Paris). 1999 Oct;31(8):285-7.

[Anaphylaxis caused by a mosquito: 2 case reports].

[Article in French]

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Author information

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Abstract

Allergy to mosquitoes that produces anaphylaxis is very exceptional. We present two observations of anaphylaxis to mosquitoes with good correlation between the clinical history and the immunological indications of which the basophil activation test proved to be effective. The many allergens of mosquitoes are contained in the juices and salivary glands and their molecular weights are between 22 and 95 kD. Specific immunotherapy, which uses whole body extracts of mosquito, gives good results of protection that induces excellent tolerance and has very good efficacy.

*Ann Allergy Asthma Immunol*. 1995 Jan;74(1):39-44.

Mosquito bite anaphylaxis: immunotherapy with whole body extracts.

McCormack DR1, Salata KF, Hershey JN, Carpenter GB, Engler RJ.

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Abstract

**Background:** Adverse reactions to mosquito bites have been recognized for some time. These usually consist of large local swellings and redness, generalized urticaria, angioedema and less easily definable responses such as nausea, dizziness, headaches, and lethargy.

**Methods:** We report two patients who experienced systemic anaphylaxis from mosquito bites. Both were skin tested and given immunotherapy using whole body mosquito extracts.

**Results:** Skin testing using whole body mosquito extracts was positive to *Aedes aegypti* at 1/1,000 weight/volume (wt/vol) in one patient and to *Aedes aegypti* at 1/100,000 wt/vol, and *Culex pipiens* at 1/10,000 wt/vol in the other. Skin testing of ten volunteers without a history of adverse reactions to mosquito bites was negative. Immunotherapy using these extracts resulted in

resolution of adverse reactions to mosquito bites in one patient and a decrease in reactions in the other.

**Conclusions:** Immunotherapy with whole body mosquito extracts is a viable treatment option that can play a role in patients with mosquito bite-induced anaphylaxis. It may also result in severe side effects and one must determine the benefit versus risks for each individual patient.

*Eur Ann Allergy Clin Immunol.* 2004 Apr;36(4):131-8.

Efficacy and safety of specific immunotherapy to mosquito bites.

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Abstract

**Background:** Adverse effects of mosquito bites are often very unpleasant and need a treatment.

**Objective:** To evaluate the efficacy of specific immunotherapy (S.I.T) with an extract of the whole body of the mosquito *Aedes communis*.

**Method:** Twenty patients having strong local immediate and delayed reactions with in many cases also an allergic rhinitis, were selected. A similar control group was included. In all these patients skin tests, RASTs and nasal provocation tests were carried out with an extract of *Aedes communis* and a battery of the commonest allergens in our area including two insects: *Blatella germanica* (german cockroach) and *Gasterophilus intestinalis* (horse fly). The specific immunotherapy was carried out by the conventional subcutaneous route.

**Results:** After 18 months of S.I.T all the patients reported the disappearance of local reactions and symptoms of allergic rhinitis, which was correlated with a statistically improvement of symptom and drug consumption scores and a decrease of allergenic reactivity by the nasal provocation test.

**Conclusions:** S.I.T with an extract of *Aedes communis* produced after 18 months of treatment a significant improvement of allergic symptoms, a decrease of symptom and drug consumption scores and of allergen specific nasal reactivity. S.I.T in mosquito bite allergy appears to be effective and safe in the treatment of both cutaneous and respiratory symptoms

*Curr Opin Allergy Clin Immunol.* 2007 Aug;7(4):350-4.

Advances in mosquito allergy.

Peng Z1, Simons FE.

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Abstract

**Purpose of Review:** Allergic reactions, including severe local and systemic reactions to mosquito bites, are immunological in nature, and involve immunoglobulin E, immunoglobulin G, and T-lymphocyte-mediated hypersensitivities in response to allergens in mosquito saliva. Naturally acquired desensitization to mosquito saliva may occur during childhood or during long-term exposure to mosquitoes. Due to the lack of availability of mosquito salivary preparations for use in skin tests and in-vitro tests, allergic reactions to mosquito bites are under diagnosed and under treated.

**Recent Findings:** Recombinant saliva allergens with biological activity are being developed. Recombinant *Aedes aegypti* salivary allergen rAed a 2 has been expressed, purified, characterized and used in in-vitro diagnosis of mosquito allergy. Mosquito saliva-induced non-immunoglobulin E-mediated skin mast cell degranulation was found to induce macrophage-inflammatory protein 2 in the skin and interleukin-10 in draining lymph nodes.

**Summary:** In this review, we discuss the allergic reactions to mosquito salivary allergens, the immune mechanisms involved, natural desensitization and immunotherapy with mosquito extracts, characteristics of salivary allergens and their recombinant forms, and prevention and treatment of allergic reactions to mosquito bites. Eventually, recombinant salivary allergens will significantly improve the diagnosis of mosquito allergy, and will also improve specific immunotherapy for patients with systemic reactions to mosquito bites.

*Lancet.* 2013 Oct 19;382(9901):1380. doi: 10.1016/S0140-6736(13)61605-0.

Anaphylaxis caused by mosquito allergy in systemic mastocytosis.

Reiter N1, Reiter M, Altrichter S, Becker S, Kristensen T, Broesby-Olsen S, Church MK, Metz M, Maurer M, Siebenhaar F.

Sincerely,

Phil Lieberman, M.D.

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